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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,362	07/23/2003	Pei Kan	38847-191328	7671

26694 7590 07/09/2008

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EXAMINER	
SCHLIENTZ, NATHAN W	

ART UNIT	PAPER NUMBER
1616	

MAIL DATE	DELIVERY MODE
07/09/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/624,362	KAN ET AL.	
	Examiner	Art Unit	
	Nathan W. Schlientz	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40,42,43,45 and 46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2-8,12,15,18,22-25,45 and 46* is/are allowed.

6)☐ Claim(s) *19,20 and 26-38* is/are rejected.

7)☒ Claim(s) *1,9-11,13,14,16,17,21,27-29,31,32,34,35,39,40,42 and 43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 1-40, 42 and 43 were amended; claims 41 and 44 were cancelled; and claims 45 and 46 were newly added in an amendment filed 15 February 2008. As a result, claims 1-40, 42, 43, 45 and 46 are examined herein on the merits for patentability.

Allowable Subject Matter

Claims 2-8, 12, 15, 18, 22-25, 45 and 46 are allowable over the prior art.

The following is a statement of reasons for the indication of allowable subject matter: the instant claims are drawn to a formulated liposome comprising a 1st and a 2nd phospholipid, liposome-forming materials, and one or more hydrophobic substances, wherein the 1st phospholipid is a hydrogenated naturally-occurring phospholipid or a saturated phospholipid having long carbon chains (i.e., at least 14 carbon atom chain) and has a phase transition temperature T_{g1} ranging between 40 and 74 °C; the 2nd phospholipid is an unsaturated phospholipid or a saturated phospholipid having short carbon chains (i.e., at most 14 carbon atom chain) and has a phase transition temperature T_{g2} ranging between -30 and 10 °C; the molar ratio of the 1st to the 2nd phospholipid is at least 3:16; the hydrophobic substance(s) are incorporated in the liposome in an amount of at least 20 mole% with an incorporation efficiency which remains at least about 70% of incorporation efficiency for six months or more; and the

drug delivery temperature T_1 and the drug storage temperature T_2 are such that $T_{g1} > T_1 > T_2 > T_{g2}$. Straubinger et al. (US 5,415,869) discloses a liposome formulation comprising a 1st and 2nd phospholipid which read on the instant invention, cholesterol, and taxol. However, the amount of taxol incorporated into the liposomes of Straubinger et al. is 1.5-8 mole% taxol. Therefore, the liposome formulations of Straubinger et al. do not have 20 mole% incorporation of taxol with at least about 70% of incorporation efficiency for six months or more. Rahman et al. (US 5,424,073) disclose liposome preparations comprising 2.11 μM taxol, 2.10 μM phosphatidyl serine, 10.77 μM phosphatidyl choline, and 7.24 μM cholesterol (Example 4). However, the liposomal taxol formulations were stable for 1 month at -20 °C, and stable for 5 months at -80 °C. Therefore, the liposomal formulations of Rahman et al. do not have an incorporation efficiency of at least about 70% of incorporation efficiency for six months or more with the drug storage temperature being greater than the phase transition temperature of the second phospholipid (i.e., greater than -30 to 10 °C).

Withdrawn Rejections

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Claim Objections

1. Claims 1 and 21 are objected to because of the following informalities: claims 1 and 21 recite, "a first phospholipid... which is selected from a hydrogenated naturally-occurring phospholipid or a saturated phospholipid", and "a second phospholipid... which is selected from an unsaturated phospholipid or a saturated phospholipid". However, these claims are not in proper Markush format. The claims should be amended to state, "a first phospholipid... which is selected from the group consisting of a hydrogenated naturally-occurring phospholipid ~~or~~ and a saturated phospholipid", and "a second phospholipid... which is selected from the group consisting of an unsaturated phospholipid ~~or~~ and a saturated phospholipid". Appropriate correction is required. The claims would be allowable if amended as indicated above.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 9-11, 13, 14, 16, 17, 27-29, 31, 32, 34, 35, 39, 40, 42 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 9-11, 13, 14, 16, 17, 27-29, 31, 32, 34, 35, 39, 40, 42 and 43, which are dependent from claims 1 and 21, limit the hydrophobic substance to 0.5 to 25 mole%, 5 to 25 mole%, 0.5 to 40 mole%, 10 to 40 mole%, 0.5 to 30 mole%, 5 to 30 mole%, 3 to 25 mole% and 8 to 25 mole%. However, claims 1 and 21 recite the

limitation "one or more hydrophobic substances incorporated in the liposome in an amount of at least 20 mole%". Therefore, the instant claims allow for less than 20 mole% hydrophobic substance. Thus, there is insufficient antecedent basis for these limitations in the claims.

2. Claims 19, 20 and 26-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of the limitation "derivative(s)" in claims 19 and 26-37, specifically "cholesterol derivatives", "a paclitaxel derivative", "a retinoic acid derivative", and "a camptothecin derivative" throughout the pending claims render the claims indefinite, as it is not clear to which compounds Applicants intend to claim. The broadest reasonable interpretation of derivatives of a compound covers all future improvements without regard to whether Applicants invented such improvements, which would undermine the function of the claims because it would allow Applicants to benefit from the ambiguity, rather than requiring Applicants to give proper notice of the scope of the claims to competitors. Additionally, adopting the broadest reasonable construction of the claims could retard innovation because cautious competitors may steer too far around that which Applicants actually invented, neglecting improvements that otherwise might be made. See *Halliburton Energy Services Inc. v. M-I LLC*, 85 USPQ2d 1654 (Fed. Cir. 2008). Accordingly, the metes and bounds of the claims are not clear. Claims 20 and 38 are dependent from claims 19 and 37, respectively, and

incorporate by reference all the limitations of the claims to which they refer, and are therefore indefinite as well.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is 571-272-9924. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/Johann R. Richter/
Supervisory Patent Examiner, Art Unit 1616